

Reply to Non-Final Office Action under 37 CFR §1.111
U.S. Serial No.: 10/789,212
Attorney Docket No.: KMG-1098

REMARKS

Applicants have carefully reviewed and considered the current Office Action and the reference(s) cited therein. Claims 3 and 10 are herein amended; no claims are herein canceled; and no claims are herein added. As a result, Claims 1-11 are now pending in this application.

Claim 3 has been amended to change "hydrocyclone" to "hydroclone," which is used in Claim 1 from which Claim 3 depends.

Rejection of Claim 10 under 35 U.S.C. §112

The Examiner has rejected Claim 10 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In support of this rejection, the Examiner states the following:

Claim 10 recites "wherein the discharge underflow comprises a majority portion of liquid and a minority portion of gas". Claim 7 teaches a chlorine/titanium dioxide mixture, therefore claim 10 lacks antecedent basis because claim 7 does not include a liquid in the mixture. Correction is requested.

The Examiner's comments are well taken and Applicants have herein amended Claim 10 to depend from Claim 8 instead of Claim 7. Claim 8 includes a liquid in the mixture. Accordingly, there is antecedent basis for the limitations in Claim 10 as currently claimed and Applicants respectfully request that this rejection be withdrawn.

Rejection of Claims 5, 6, and 9 under 35 U.S.C. §102

The Examiner has rejected Claims 5, 6, and 9 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,188,327 issued to Schwamborn ("Schwamborn"). Applicants respectfully traverse this rejection.

In support of this rejection, the Examiner states the following:

Schwamborn teaches a method for separating gas from a first gas/solid mixture comprising introducing the first gas/solid mixture (from inlet 4) into a cyclone (1), separating the first mixture into a gas overflow (19) and a discharge underflow (7), introducing a purge gas stream (from gas supply system 33) to the discharge underflow to create a second mixture comprising purge gas and gas displaced from the discharge underflow, and merging the second mixture with the gas overflow. Schwamborn further teaches wherein the discharge underflow comprises a majority portion of solids and a minority portion of gas.

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Applicants disagree with the Examiner's characterization of Schwamborn's teachings.

Applicants contend that Schwamborn does not teach or suggest introducing a purge gas when the dynamic separator 14 is used as a cyclone. In fact, Schwamborn expressly states:

When the device according to the invention is converted to a cyclone separator (FIG. 2), a gas supply to the secondary sizing chamber is not necessary. In this case, the valves 36 are closed.

Column 3, lines 32-35. Closing valves 36 shuts off the gas from the gas supply system 33. Accordingly, Schwamborn expressly states that no gas (purge gas or otherwise) is used from the gas supply system 33 when the device is used as a cyclone.

When not used as a cyclone, the device in Schwamborn does not teach or suggest "separating the first mixture into a gas overflow and a discharge underflow" as required by Claim 5. When the device in Schwamborn is not used as a cyclone separator it is used as a sifter to separate larger particles (i.e., the "coarse flow") from smaller particles (i.e., the "fines flow"). Thus, Schwamborn teaches separating out larger particles and allowing the fines flow (i.e., a gas/solid mixture) to exit via the angled discharge line 19. The angled discharge line 19 is also referred to as the outlet tube 19 (column 2, line 54), the angled product discharge line 19' (column 2, line 62), and the fines discharge 19 (column 4, line 8). Schwamborn teaches allowing all particles of a particular size range (i.e., the fines) to exit via the discharge line. That is, Schwamborn only separates out larger particles and intentionally allows all smaller particles to exit via the discharge line. This is because the purpose of the device in Schwamborn, when not used as a cyclone separator, is to separate large solids from small solids and not to separate all solids from the gas in a gas/solid mixture. A cyclone separator as taught in the present specification may have some particles escape in the gas overflow. However, this is only because cyclone separators are not 100 percent efficient and not because there is an intent to have all smaller particles exit via a gas overflow.

The purpose of the purge gas in the present invention is "to create a second mixture comprising purge gas and gas displaced from the discharge underflow," (Claim 5 of present invention) not to carry residual fines with as is the purpose in Schwamborn. Column 3, lines 21-25. In the present invention, "[T]he purge gas flow is generally countercurrent to the discharge underflow and the flow is not so large as to re-entrain solids or liquids into the gas stream." Page 4, lines 10-12. Thus, the purge gas in the present invention is used to displace

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(i.e., purge) process gas from a discharge outlet and the flow is not so large as to re-entrain solids into the gas stream. The gas in Schwamborn, on the other hand, is not a purge gas at all, but is a gas introduced at high speed to re-entrain solids (i.e., smaller solids or fines) into the gas stream. Column 3, lines 21-25.

Rejection of Claim 11 under 35 U.S.C. §103

The Examiner has rejected Claim 11 under 35 U.S.C. §103(a) as being unpatentable over Schwamborn. Applicants respectfully traverse the rejection.

Claim 11 depends from Claim 5 and Applicants contend that Claim 5 is patentable over Schwamborn for all the reasons stated above. Accordingly, Applicants contend that Claim 11 is patentable over Schwamborn and respectfully request that this rejection be withdrawn.

Allowable Subject Matter

The Examiner has allowed Claims 1-4. Applicants respectfully agree.

The Examiner has stated that Claims 7 and 8 are dependent upon a rejected base claim (i.e., Claim 5), but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants contend that Claim 5 is patentable over Schwamborn for all the reasons stated above, and therefore Claims 7 and 8 are patentable over Schwamborn. Accordingly, Applicants respectfully request that the objection to Claims 7 and 8 be withdrawn.

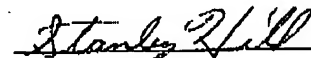
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CONCLUSION

Applicants respectfully submit that Claims 1-11 are in condition for allowance and notification to that effect is earnestly requested. If the Examiner believes that a telephone conversation with the Applicants' representative would facilitate prosecution of this application in any way, the Examiner is cordially invited to telephone the undersigned at (508) 303-2003. If necessary, please apply any additional fees, or credit overpayments, to Deposit Account 50-2295.

Respectfully submitted,

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Reg. No.: 37,548


Stanley K. Hill
Attorney for Applicant(s)
Guerin & Rodriguez, LLP
5 Mount Royal Avenue
Marlborough, MA 01752

Tel. No.: (508) 303-2003
Fax No.: (508) 303-0005

The undersigned hereby certifies that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service, with sufficient postage as first class mail, in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Stanley K. Hill

Date: March 3, 2006

